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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,465

08/13/2007

Hyun Kim

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KED & ASSOCIATES, LLP  
P.O. Box 221200  
Chantilly, VA 20153-1200

EXAMINER

LOPEZ, FRANK D

ART UNIT

PAPER NUMBER

3745

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/584,465	<b>Applicant(s)</b> KIM ET AL.	
	<b>Examiner</b> F. DANIEL LOPEZ	<b>Art Unit</b> 3745	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 10 January 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1 and 19-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1 and 19-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/22/06 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/2/09</u> .   | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

Applicant's arguments filed January 10, 2010, have been fully considered but they are not deemed to be persuasive.

Applicant's arguments with respect to claims 1 and 19-31 have been considered but are deemed to be moot in view of the new grounds of rejection. The new grounds of rejection are necessitated by adding the limitations of claims 2 and 18 to claim 1.

Applicant states that before top dead center the elastic members 450 and 460 bend and so the moving speed of the piston is delayed, and at top dead center, the first and second holders 331b and 332b, the elastic members 450 and 460, and the piston 340 is aligned (paragraph bridging page 13 and 14). This is understood and agreed to by the examiner. Applicant then states that in top dead center, the elastic member 450 is compressed. The examiner does not understand why this is so, from the specification. The examiner understands that this could happen, since the neutral length of the coil spring 450 could be greater than the neutral length of the other elastic member; but this does not affect the understanding of what happens after top dead center, it will not be contested at this time.

Applicant states that "as the eccentric part moves away from top dead center downward, the fourth elastic member 450 as well as the fifth elastic member 460 bend as the fourth elastic member 450 is restored and provides a force that makes the piston 340 move downward at a faster speed in the re-expansion". The examiner disagrees. The force of the eccentric part on the second holder is away from the piston, thereby causing the elastic members 450 and 460 to be put in tension, not compression. The inertia of the piston plus the suction of fluid into the chamber formed by the piston creates a force on the first holder also causing the elastic members 450 and 460 to be put in tension, not compression. These 2 tension forces would cause the elastic members 450 and 460 to be straightened out; and not to be bent, as Applicant suggests. If anything, the compression of the elastic member 450 would also cause the elastic members 450 and 460 to be straightened out; and not to be bent, as Applicant suggests. As such the objection to the specification and drawings are maintained.

Applicant states that the coil spring 23 of Albarda merely surrounds the tube 14 and is not connected to the tube 14; and as such does not have opposite ends connected to the first and second connecting parts respectively. Applicant appears to misunderstand the rejection. The second connecting part includes both 14 and 22. The coil spring 23 is connected to the part 22 of the second connecting part, thereby meeting the claimed limitations.

Applicant states that the inner spring 24 of Albarda is provided inside tube 14, not inside coil spring 23. This argument is misleading. Since the tube 14 is inside the coil spring 23, the inner spring 24 is inside both the tube 14 and the coil spring 23, thereby meeting the claimed limitation.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Specification***

The disclosure is objected to because of the following: Page 15 line 6-9 states “as a force that pushes up the piston 340...is provided to the fourth elastic member 450, the fourth...as well as the first member 460 bend, and relative to this, the upward moving speed of the piston part 340 is delayed”; and line 12-14 states “the connecting rod 330 does not bend at a top dead center, and...the fourth 450 and the fifth elastic members 460 bend little by little in the re-expansion, to provide a force that make the piston 340 to move down at a fast speed”. The examiner understands the first part, since the force of the crankshaft on one side of the connecting rod is balanced by the force of compressing the gas acting on the other side of the connecting rod, and the rod bends. The examiner does not understand the second part, since there is no force acting on the connecting rod to cause it to bend. If anything, there is a force acting to keep it straight, since the force of the crankshaft and the inertia of the piston act to stretch the connecting rod out, keeping it straight. Therefore, it would appear that the connecting rod of the embodiment of fig 9A-9C would work to allow the speed of the piston to be delayed, but would not allow the speed of the piston to be accelerated. Appropriate correction is required.

### ***Drawings***

The drawings are objected to because in fig 9C the fourth and fifth elastic members should be shown as straight, instead of bent (see objection to the specification, above).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

Claims 1 and 19-31 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 line 7-10 "a connecting rod... and a supplementary torque providing part" is confusing, because for the elected species (as claimed in lines 13-19), the supplementary torque providing part is the connecting rod. In claim 1 line 11-12 "compression, extension, and restoration of the supplementary torque providing part are made along a direction of movement of the piston" is wrong, since the supplementary torque providing part of the elected species (as claimed in lines 13-19) bends, which is not along the direction of movement of the piston.

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In claim 24 line 1-2 “the first elastic member” should be –the second elastic member--.

In claim 25 line 2 “second elastic member includes at least one of a plate spring or a coil spring” appears to be wrong, since the second elastic member is a coil spring.

In claim 29 line 1 “the coil spring” has no antecedent basis. Suggest that it depend from claim 22.

Claims not specifically mentioned are indefinite, since they depend from claim 1.

### ***Claim Rejections - 35 USC § 102***

Claims 1, and 22, inasmuch as it is definite, are rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over Albarda. Albarda discloses a compressor comprising a piston (5) reciprocating in a cylinder (1), connected to an eccentric part of a crankshaft (6), by a connecting rod (54); and a supplementary torque providing part (including 64) for reducing a speed of the piston in compression and accelerate a speed of the piston in drawing in refrigerant; wherein the supplementary torque providing part moves in compression, extension and restoration along a direction of movement of the piston (e.g. fig 2); wherein the connecting rod includes first (7, 16) and second (14, 22) connecting parts connected to the piston and eccentric part, respectively; wherein the supplementary torque providing part includes first elastic coil spring (23) having opposite ends connected to the first and second connecting parts, respectively, and a fifth elastic member (24) inside the fourth spring; but does not indicate whether an electric driving part drives the crankshaft.

Inherently, crankshafts of compressors are driven by a variety of devices, including an electric motor. Therefore, inherently, the crankshaft of Albarda can be driven by a variety of drives including an electric motor, meeting the claimed limitation. If not, it would have been obvious at the time the invention was made to one having ordinary skill in the art to drive the crankshaft of Albarda with an electric motor, as one of many appropriate drives.

**Conclusion**

Claims 19-21 and 23-31 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. § 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Lopez whose telephone number is 571-272-4821. The examiner can normally be reached on Monday-Thursday from 6:00 AM -4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Look, can be reached on 571-272-4820. The fax number for this group is 571-273-8300. Any inquiry of a general nature should be directed to the Help Desk, whose telephone number is 1-800-PTO-9199.

/F. Daniel Lopez/

F. Daniel Lopez  
Primary Examiner  
Art Unit 3745  
April 7, 2010